R E P O R T R E S U M E S

ED 016 253 24 CG 001 316

AN EXPERIMENTAL INVESTIGATION OF ATTITUDE CHANGE PROCEDURES SUGGESTED BY CONTRAST AND ASSIMILATION PHENOMENA. FINAL REPORT.

BY- NORRIS, ELEANOR L.
AMERICAN INST. FOR RESEARCH IN BEHAVIORAL SCIENCES

REPORT NUMBER BR-6-8413 PUB DATE 31 MAY 67
REPORT NUMBER AIR-F23-5/67-FR
GRANT OEG-1-6-068413-1388
EDRS PRICE MF-$0.50 HC-$3.24 79P.

DESCRIPTORS- *ATTITUDES, *CHANGING ATTITUDES, *RESEARCH PROJECTS, ADOLESCENTS, ADULTS, RATING SCALES,

TO INVESTIGATE WHETHER CHANGING A SCALE AGAINST WHICH SUBJECTS (SS) JUDGED ATTITUDINAL POSITIONS WOULD CHANGE THE SUBJECTS' ATTITUDES AS WELL, THREE STUDIES WERE CONDUCTED. SPECIFICALLY, TWO PROCEDURES SUGGESTED BY CONTRAST AND ASSIMILATION PHENOMENA FOR INCREASING THE LIKELIHOOD OF ASSIMILATION RATHER THAN CONTRAST, OF A DISCREPANT ATTITUDINAL POSITION, AND CONSEQUENT ATTITUDE CHANGE TOWARD THAT POSITION WERE EXAMINED. THE PROCEDURES WERE--(1) ENHANCE THE ASSIMILATION EFFECT BY PRESENTING A SERIES OF PERSUASIVE COMMUNICATIONS STARTING WITH AN ATTITUDINAL POSITION SIMILAR TO ONE'S OWN AND MOVING GRADUALLY TOWARD A HIGHLY DISCREPANT POSITION, AND (2) INCREASE THE LIKELIHOOD OF ASSIMILATION OF A MODERATELY DISCREPANT ATTITUDINAL POSITION BY PRESENTING IT IN CONTRAST TO AN EVEN MORE DISCREPANT POSITION. THE RESULTS OF THE STUDIES STRONGLY INDICATE THAT DIFFERENT JUDGMENTAL SCALES PROVIDED TO SS DO RESULT IN DIFFERENT EXPRESSIONS OF ATTITUDE BY SS. HOWEVER, THIS WAS NOT ATTRIBUTED TO THE PROCEDURES SUGGESTED BY ASSIMILATION AND CONTRAST PHENOMENA BECAUSE A BASIC CONDITION REQUIRED TO TEST THE PROCEDURES WAS NOT ACHIEVED IN THE STUDIES. THE RESULTS ARE EXAMINED IN TERMS OF PERSPECTIVE THEORY, AND THE IMPLICATIONS OF THE FINDINGS ARE DISCUSSED. (AUTHOR)

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ED016253

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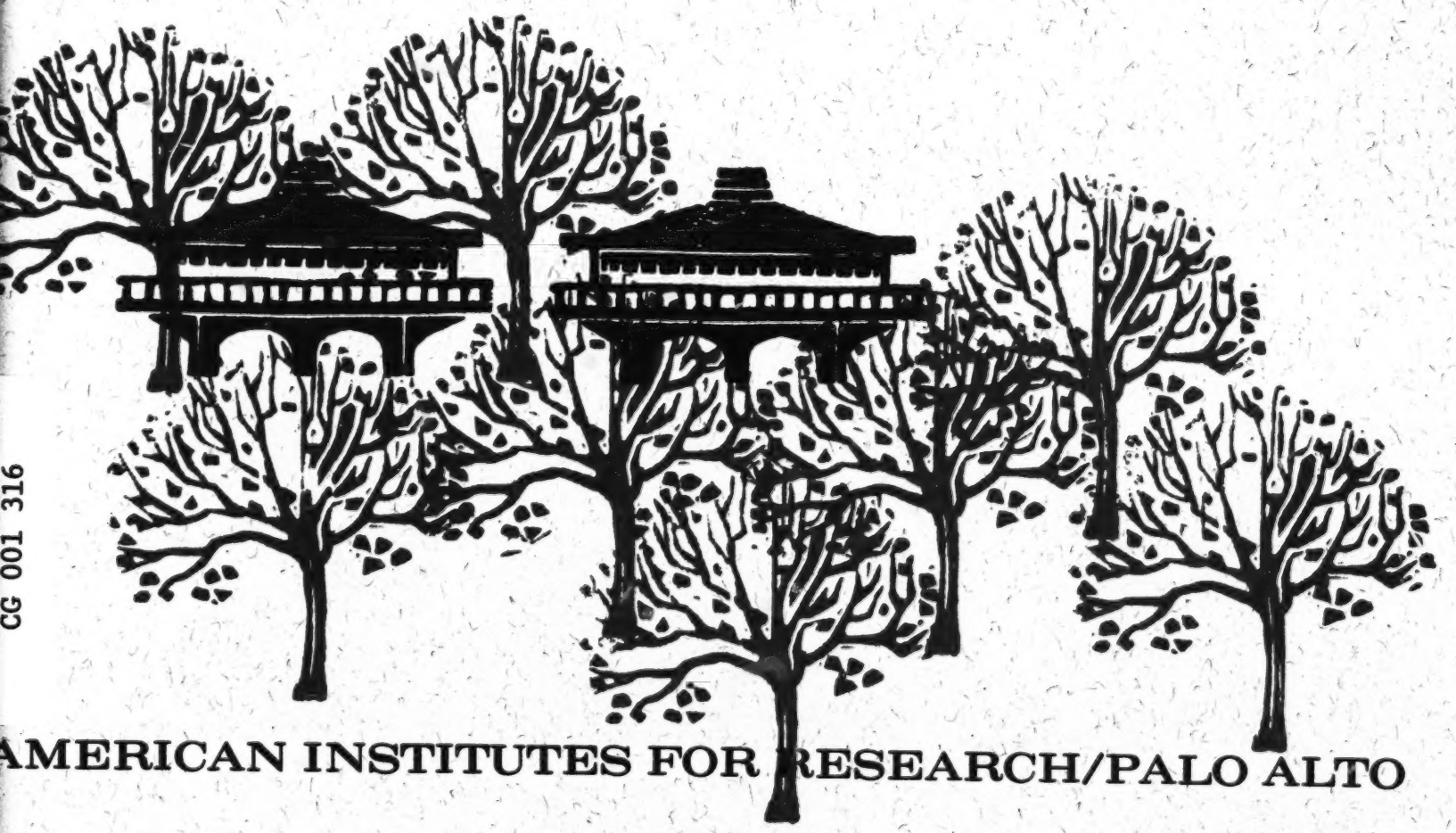
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education
Bureau of Research



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AMERICAN INSTITUTES FOR RESEARCH/PALO ALTO

AMERICAN INSTITUTES FOR RESEARCH

mailing address: P.O. BOX 1113, PALO ALTO, CALIFORNIA 94302
TEL. (415) 328-3550
office location: 1791 Arastradero Road, Palo Alto, California

An Experimental Investigation of Attitude Change Procedures Suggested by Contrast and Assimilation Phenomena

Project No. 6-8413
Grant No. OEG 1-6-068413-1388

Eleanor L. Norris

31 May 1967
AIR-F23-5/67-FR

The Research reported herein was performed pursuant to a grant with the Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

American Institutes for Research
Palo Alto, California

ACKNOWLEDGMENTS

In order to conduct the research reported here, several large groups of subjects were required to participate in pre-tests and the main studies. Without the cooperation of a number of administrators and teachers in the Palo Alto Unified School District, obtaining these subjects would have been extremely difficult, and the problems of carrying out the project much greater. For his initial interest in the project and his authorization to conduct it in the Palo Alto school district, thanks go to Dr. Nicholas Anastasiow, then district director of research, now at Duke University. Mr. John L. Martin, assistant superintendent, was helpful in later stages of my research. For their assistance in arranging for students to serve in two pre-tests, my thanks to Mr. Carl Colman, dean, and Mr. James E. Sudyk, assistant principal, and teachers who gave class time for the pre-tests, Mr. Walter Thomas and Mr. Dick Robbins, all of Gunn High School. Dr. Scott Thomson, principal of Cubberley High School, kindly made the entire senior class at his school available to participate in the main studies. My appreciation goes to him, and to Mr. Warren Nelson, Mr. Michael Dale, and Mr. William Nichols, whose students and valuable class time were contributed to the project. Mr. Tully Knoles, director of adult education, graciously consented to my use of evening classes, and business teachers Mr. Paige Langdon, Mrs. Alma Shuchat, and Mr. George Moore as graciously gave up part of their teaching time to the research. I cannot complete these acknowledgments without expressing my thanks to the students, high school and adult, who cooperated in the project.

Within the A.I.R. staff, my thanks go to Dr. Leslie J. Briggs, director of the Instructional Methods Program, for his assistance and support both in the proposal-preparation stage and throughout the grant year, and to Mrs. Sally Ford and Mrs. Jeanine Means for their invaluable assistance in data processing. Finally, to Dr. Jacqueline Macaulay, who served as consultant to the project, my especial thanks for asking the right questions, worrying about the same problems, and sharing her knowledge and insights with me.

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INTRODUCTION

It is generally recognized by educators that the educational process aims not only at providing students with information and skills, but at influencing attitudes as well. As McDonald (1959) points out:

> American schools have always attempted to influence attitudes to some extent . . . . The modern school differs from its antecedents only in the range of attitudes that it attempts to develop. (p. 211)

Attempts to modify attitudes have not stopped with the students, however, but have extended to parents and the community at large (cf. McDonald, 1959, Chapters 7 and 8); such programs underline the integral association of attitude change problems with the educational process.

These attempts by the educational system to inculcate or to modify attitudes, however, have tended to be pragmatic samplings from a number of fairly well established (or perhaps simply "common sense") principles for achieving attitude change rather than the systematic application of principles in such a way that the underlying process involved in attitude change might be investigated. In itself, this kind of approach is not open to criticism if its purpose is entirely the practical one of leading to modification of attitudes -- no matter how it is done. It is open to criticism if there is a desire to explain its success or lack of success, since it is not possible to determine which of the variety of techniques was successful or not, or why the total compaign was effective or not.

The answers to these kinds of questions are more readily found in an experimental setting than in the field situation. Clearly, for the purposes of the educational system it is also essential that the validity of experimental findings be tested in the field. What is discussed here is a research project aimed in the long run at fulfilling both these needs: An experimental investigation of certain implications of one particular theoretical approach to the attitude change process was conducted, and the results are reported here along with a discussion of their application in the educational setting. Further work applying these findings to such a setting remains to be done.

Theoretical Framework of the Research

A theoretical approach to the understanding of behavior in general, and attitude change in particular which has received much attention in the research literature in recent years is the social judgment theory which stems from Helson's (1964) adaptation level theory and is represented in Sherif and Hovland's (1961) investigations into the process of attitude change. A key concept of this framework involves the phenomena of contrast and assimilation -- contrast resulting in the rejection of the stimulus (e.g., discrepant attitudinal position), assimilation leading to acceptance of the stimulus. The research reported here investigated some implications of the phenomena of contrast and assimilation for facilitating attitude change.

Related research and statement of the problem. "Put a frog in water, they say, and heat the water very slowly. Before the frog catches on, he's cooked."

As folklore, this saying has widespread, although perhaps humorous, acceptance. It has, in fact, found its adherants among political educators, if we are to believe warnings of the "creeping" tactics of extreme right and left (Church, 1965).

A more formalized statement of this view is found in what will be termed here "judgmental theory", based on Helson's adaptation level theory extended to the field of social perception and judgment, and which underlies such work as Sherif and Hovland's attitude studies.

The central propositions of adaptation-level (A-L) theory are that judgments of stimuli (e.g., physical weights, attitudinal objects) are made in relation to some scale perceived by individuals, and specifically in relation to the adaptation level, or neutral point, of that scale. The adaptation level, in turn, is a function of "all stimuli impinging upon the organism from without and all stimuli affecting behavior from within" (Helson, 1964, p. 59). Helson divides all stimuli into three classes: (1) focal stimuli, (2) background or contextual stimuli, and (3) residual stimuli. In the experimental setting, the focal stimulus would be, for example, the attitudinal position toward which experimental manipulation

is directed; the background stimulus would be the context in which the information manipulating attitude was presented; and the residual stimuli would be all other, uncontrolled factors. Adaptation level, then, is a function of focal, background, and residual stimuli, and A-L theory postulates that it is against the adaptation level that individuals judge stimuli. Thus, in judging the attitudinal position of a number of statements, judgment will depend on the perceived distance of each item from the adaptation level, or neutral point. Helson reports several studies which support this application of A-L theory to the field of social judgment -- e.g., judgments of the position of a series of attitudinal statements do vary as a function of the context in which they occur.

In investigating the process of attitude change, the question posed by A-L theory is whether changing the judgment of attitudinal items by varying the context in which they occur will be accompanied by attitude change. In short, will changing the scale against which attitudinal items are judged change judges' own attitudinal position? Investigating this question, of course, requires experimental manipulation of the scale. The key to this manipulation is provided by the phenomena of contrast and assimilation. As Helson explains:

> In social judgments, small differences in items from an individual's own position are minimized (the assimilation effect), while larger differences are magnified (the contrast effect). (Investigator's parenthetical explanations.) (p. 33)

In the attitude change situation, the items referred to are persuasive communications which advocate an attitudinal position different from the individual's own position. Whether attitude change occurs depends not only on that advocated position but on the perceived discrepancy between it and one's own position. If the message suggests a position not far from one's own, it is likely to be assimilated, or seen as quite similar to one's own position. In this case, attitude change may follow (that is, not only is the advocated position judged to be similar to one's own, but it is accepted as one's own). On the other hand, if the advocated position is very dissimilar from one's own, a contrast effect would tend to occur. That is, the position would be judged to be highly discrepant from one's own

position, and it would be rejected. The implications for creating attitude change are that messages advocating a position fairly close to one's own will be more likely to be assimilated and accepted than will messages advocating a position relatively discrepant from one's own. Studies by Whittaker (1964) and Freedman (1964) support this view.

Both these studies took into account subjects' existing attitudes, and presented messages of varying discrepancy from that attitude. The present study attempted to increase the probability of assimilation, and of attitude change, by varying the scale against which an advocated attitudinal position was judged so that a position which actually was moderately or extremely discrepant from subject's own would be perceived as relatively close to his own. The rationale behind the procedures used stems from Sherif and Hovland's (1961) social judgment formulation, a basic concept of which is the number of attitudinal positions discrepant from one's own which an individual accepts and rejects. Attitude statements which fall within an individual's "region of acceptance" are likely to be assimilated, while statements which fall within an individual's "region of rejection" will be contrasted. The width of the regions of acceptance and rejection are considered by Hovland and Sherif to be an index of the degree of involvement of an individual with a topic. They have considerable evidence that individuals with narrow regions of acceptance and wide regions of rejection on a particular issue are more involved with that issue, and reject more attitudinal positions discrepant from their own. Given two individuals with similar attitudes, but differing degrees of involvement -- i.e., differing width of region of acceptance and rejection -- one would expect more attitude change following a persuasive communication by the less involved than the more involved. The work of Whittaker (1964) lends support to this hypothesis.

Regardless of whether one utilizes the identification of degree of involvement with width of regions of acceptance and rejection, one implication of the model is that if one can expand the individual's region of acceptance, assimilation and attitude change toward the discrepant position will be more likely to occur. One possible procedure for expanding an

individual's region of acceptance and leading to more attitude change would be to present a series of persuasive messages, the first of which advocates a position relatively close to own position and within the region of acceptance, the second advocating a position somewhat more discrepant, and so on until the original region of acceptance has been exceeded and expanded. This step-by-step procedure would not be expected to be successful, however, if the first message of the series were perceived as discrepant from own position and were rejected.

The first study reported here investigates this method of step-by-step persuasion for leading to attitude change, comparing relative degree of change by Ss for whom discrepancy between own position and that advocated in the first message of the series, and region of acceptance were varied. A number of questions about judgment of the messages, the issue used, and perceived discrepancy of the attitudinal position in the messages also are included in the study.

A second procedure which follows from the contrast and assimilation phenomena is to cause a moderately discrepant communication to be judged closer to own position than it really is by presenting it in contrast to an even more discrepant message. In the second study, one group of Ss reads the highly discrepant message first, followed by the moderately discrepant one, while a second group reads the messages in the reverse order. It is expected that the group reading the extreme message first will contrast the subsequent moderate message to that first extreme one, and thus will assimilate it toward their <u>own</u> position, but that the group which reads the messages in the opposite order will contrast the moderate message against their own position, thus rejecting both the moderate and the extreme messages. The same questions about judgment of story, issue, and discrepancy as discussed above for Study I are used in Study II as well.

A third study also is reported here which was not planned originally. A partial replication of Study I, it grew out of findings of that study and will be discussed further below.

METHOD AND PROCEDURE

The nature of the studies required that a topic for attitudinal manipulation be selected which would allow objective assessment of the range of attitudinal positions and thus manipulation of the discrepancy between Ss' own attitudes and the attitudinal positions advocated in the persuasive messages. One method for accomplishing this would be to have a group of Ss scale a variety of attitude statements, using the Thurstone scaling procedure (Thurstone and Chave, 1929), then have experimental Ss indicate their own position and regions of acceptance and rejection on this scale, and have them read messages of selected discrepancies from Ss' own position. In the present research, an alternative procedure was used. A topic which provided a built-in objective scale was chosen -- a discussion of a proposed salary scale for a selected group of workers. Further, a group of workers whose actual salary scale was not known to the Ss who would participate in the study was used, thus allowing the investigator to manipulate Ss' belief about present salary and, thus, manipulate the discrepancy between alleged present salary and the salary proposed in the first message of the series.

The senior class at one of the Palo Alto high schools was made available to participate in Studies I and II. After discussion with high school counselors, teachers, and students, it was determined that students' awareness of salaries in general was less than accurate, and that knowledge of the range of pay received by sales clerks was vague. Consequently, messages prepared as news stories discussing a proposed salary scale for sales clerks were prepared. The messages reported purported meetings between representatives of sales clerks and management to establish pay guidelines to be used by large department stores in the Chicago area. The "meetings" were removed to the Chicago area, with whose salary ranges Palo Alto students presumably would be unfamiliar, as a further precaution against Ss' rejecting salaries discussed as "unreal." Salaries allegedly discussed in the meetings were varied for the different experimental groups in the two studies.

Manipulation of discrepancy. The discrepancy between Ss' own attitude

and the position advocated in the messages was manipulated by establishing for Ss in each condition their belief or attitude toward present salaries for sales clerks. In Study I, the present average hourly salary purportedly received by sales clerks was varied according to the requirements of the experimental conditions. All Ss then read the same subsequent communications, which reported the salary guidelines discussed and advocated in each of four meetings between clerks and management. In Study II, the purported present salary -- the baseline or anchor established for Ss -- was the same for all Ss, and the salaries discussed in the manipulative messages also were the same, but the order in which the subsequent messages was read varied, thus varying discrepancy between anchor and salary discussed in the first message read. The specific anchors and figures in subsequent messages are given below, where each study is presented separately.

Manipulation of region of acceptance. One hypothesis to be tested in Study I is that more attitude change will result (higher salaries will be advocated) by Ss who read a series of messages, the first of which advocates a position relatively close to Ss' own attitude and region of acceptance. Region of acceptance was defined here not in terms of "involvement," as Hovland and Sherif have discussed it, but was established in terms of the range of salaries received by clerks -- the top and bottom salaries paid. Because the high school students serving in the study were considered to be ignorant of the actual salaries paid clerks, it was assumed that the range of salaries established for them would be accepted and would serve as another reference point, or scale, against which subsequent salary discussions would be assessed. Region of acceptance as used in this study may be considered as a range which establishes a scale of what exists, against which the "reasonableness" or "acceptability" of what is proposed may be compared. Ranges are given below, when Study I is presented.

Messages. Four messages were prepared for Study I, two of which were used, with slight modifications, in Study II. These will be discussed below.

Measures. The main dependent variable, asked after Ss had read all messages appropriate to their experimental condition was, "What average hourly wage do you feel should be used by employers as a basic salary

guideline?" Ss' judgments of the size of the salary increase advocated in the final message was assessed on a 15-point scale divided into five main categories defined as "no increase at all," "a very small increase," "a moderate increase," "a rather large increase" and "a very large increase." Each of the five categories was further divided into three subcategories, allowing Ss to express finer degrees of feeling about the size of the increase. Ss also were asked their judgments of the sufficiency of the salary increase and, in a second item, of the present average hourly salary, again using the 15-point scale. The categories on this scale were defined as "definitely not enough, "not quite enough," "about right," "a little too much," and "definitely too much."

Judgments of the news stories and of sales clerks were obtained on 7-point scales with bipolar adjectives defining the end points only. Several bipolar adjectives scales were used, but some were mainly to support the "cover" for the studies set up by the instructions. For judgment of news stories, two adjective pairs were actually analyzed: "factual-not factual" and "believable-unbelievable." Two adjective pairs were analyzed for judgment of sales clerks: "valuable-worthless" and "good-bad." Judgments of "the kind of meetings reported" also were obtained as part of the cover, but were not analyzed. Students were also asked to indicate whether they had worked as sales clerks, and if they planned to do so in the future. Comparison of salaries advocated by Ss who had worked as clerks and those who had not was intended. The number of Ss who had done so in each condition was relatively small (as little as 3 out of 19) however, and in only one condition was the split between Ss who had and had not worked as clerks almost even (9 yes, 10 no). A comparison between mean salary advocated by Ss who had and had not worked as clerks in this one condition found no significant difference ($t = .776$). In all subsequent analyses, "clerk" and "no clerk" Ss were not considered separately.

Subjects. A total of 245 seniors at one local high school served in one experimental condition in one of the two studies. Six Ss were omitted for failing to answer the crucial question about what salary they felt clerks should receive. Nine Ss were omitted for inconsistent responses -- i.e.,

while checking that the present salary was not enough, they still advocated a salary less than the present salary. One S who advocated an extreme hourly salary of $10.00 was dropped,[1] as well. This left 19 Ss in the smallest cell. Nine Ss were randomly deleted from other cells to achieve equal n.

Procedure. Testing for both studies was done at the same time, during the regular meetings of senior social studies classes during one school day. Experimental materials were assembled into booklets appropriate for each condition, and these booklets were systematically ordered and passed out to students so that all conditions were represented at each class period. The principal investigator read aloud the first page of the booklets, which gave a brief explanation of the research, purportedly an investigation of "the public's judgment of news stories and the information in them." Responses were anonymous, and Ss' careful consideration of the stories and the questions was requested. Ss then were told to proceed through the booklet at their own speed, sitting quietly when they finished until everyone had completed the task.

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[1] Although a procedure of trimming or of Winsorization (Tukey, 1962) was considered it was felt that the existence of only one such extreme case (the next most extreme salary advocated was $7.35, which was the highest salary advocated by the messages) out of 239 argued more for omitting it alone. Thanks go to Dr. Kasten Talmadge for his assistance in considering this statistical point.

STUDY I

Method

Messages. Four messages were prepared, each one reporting either the initial or a subsequent meeting between representatives for retail sales clerks and management officials from major department stores in the metropolitan Chicago area to discuss salary guidelines. Each story was presented as a news story with a Chicago, Ill., dateline, and the first message was dated in early November, the last one in late November. The first story explained the reason for the purported meetings, gave the present hourly average salary (the anchor) and the top and bottom salaries (the region of acceptance), and closed by saying that the committee would attempt to establish a consensus "which would serve as the salary guideline for all participating stores." It also stated that a salary figure of $3.75 was discussed at this first meeting as a possible average to be used as a guideline. The difference between the purported present average salary and $3.75 is the manipulated discrepancy, then, between anchor and attitude advocated in the first message of the series. The three subsequent stories were reports of successive meetings. Each included a brief resume of the reason for the meetings, repeated the present average wage, and told the figure proposed as the new average salary. These salary increases were $4.95 in the second message, $6.15 in the third message, and $7.35 in the fourth and final message. The last story repeated information which had been contained in the first three messages, and began: "A committee of retail sales clerks and management from Chicago area department stores concluded its discussions today, going back to the individual stores with a proposal that wages for sales clerks be raised to an average of $7.35 an hour." These messages did not actually ask Ss to accept the salaries discussed at each meeting, but only told them what the figures were.

These particular salary steps were chosen after a pre-test of messages was given to 96 students at another high school. The pre-test salary range was from a present salary of $3.25 to a top of $5.50. One purpose of the pre-test was to select a maximum salary for discussion which would not, by

itself, cause as much attitude change as the series. The $5.50 top was not sufficient for this purpose -- Ss reading only one message discussing this $5.50 average salary advocated salaries as high as did Ss who read a series of messages leading up to the $5.50. Therefore, for the present study, the top was extended to $7.35.

The four stories were of different lengths, the first one approximately 260 words, the second, about 182 words, the third, also about 182 words, and the final message, about 360 words. The messages are shown in Appendix A. Source of the messages was a "John C. Bates, spokesman for the committee and a retired personnel manager from one of the department stores," selected for this study as a neutral source.

Design. The two basic independent variables are discrepancy between present salary (Anchor) and the $3.75 proposed salary in the first message of the series and the size of the region of acceptance (Range). Two levels of each variable were included, high and low discrepancy, and high and low range. Discrepancy was varied by having half of the Ss told in the initial message of the series that present salaries are $2.50 an hour, while the other half were told that present salaries average $3.25 an hour. Since the first "raise" discussed by the committee was to $3.75 an hour, the discrepancy is thus larger for the $2.50 anchor Ss than for the $3.25 Ss. The two ranges between top and bottom salary used were 75 cents and $1.75. Figure 1 shows this design. The numbers in each cell indicate the average (underlined), the bottom, and the top salaries. The letters in parentheses are the designation of each condition.

Range

Anchor	Low (75¢)				High ($1.75)		
$2.50	2.25	(a) <u>2.50</u>	3.00		1.75	(b) <u>2.50</u>	3.50
3.25	3.00	(c) <u>3.25</u>	3.75		2.50	(d) <u>3.25</u>	4.25

Figure 1.

The first advocated raise, $3.75, falls closer to the high than the low range, although clearly within or at the boundary of the range of conditions c and d.

Because of the experience in the pre-test that the most extreme message was by itself just as effective as the series in causing Ss to advocate high salaries, it was decided to include four control groups to check this point in the present study, one for each of the main experimental anchor x range conditions. Ss in each of the control groups read only the last, most extreme message which gave the appropriate present salary and range, and advocated a salary of $7.35 an hour. There were, then, 8 groups in this study, with 19 Ss in each.

Procedure. Ss serving in the "series" conditions read the four messages, the first of which varied according to anchor and range but was similar for all conditions in that it reported that representatives discussed a raise to $3.75 an hour. The subsequent messages discussed raises to $4.95, $6.15, and $7.35. The Ss in the four "end" conditions read only the message advocating a salary of $7.35 an hour. This message was written to include all information which had been presented in the first three messages, except that it did not report the previous salary figures which had been discussed. The "present" salary and range was of course given, plus all four anchor-range combinations were represented. Thus there was a condition 4a, in which Ss read only the final message advocating a salary of $7.35, and which reported that the present average hourly salary is $2.50, with a range from $2.25 to $3.00. Similarly, there were conditions 4b, 4c and 4d, in which Ss read the $7.35 message and were given the average and range identical to their corresponding "series" conditions. All Ss then answered questions about size of the proposed increase to $7.35, the sufficiency of the raise and of the present salary, what salary they felt clerks should receive, and other questions about the stories and about clerks.

Results

The question asked Ss which provides the information of greatest interest was, "What average hourly wage do you feel should be used by employers

as a basic salary guideline?" It was expected that a highly discrepant position -- here represented by the $7.35 salary advocated in the final message -- would by itself be contrasted, seen as more discrepant than it in fact is, and would cause relatively little movement toward that salary. However, if a series of messages, beginning with a message advocating a position fairly close to Ss' own position, were presented leading up to the $7.35 figure, it would be seen as relatively close to own position, and more movement toward the $7.35 would occur than for Ss reading a series beginning with a position more discrepant from Ss' own, and certainly more than in conditions in which only the $7.35 message was read.

A basic condition required to test the relative effectiveness of the series group is that the $7.35 by itself be contrasted, resulting in little or no movement toward it. Before considering the salaries advocated by the Series and End conditions, then, we will investigate the effectiveness of the experimental manipulation.

Ss' perception of advocated and present salaries. Ss were asked to judge the size of the proposed hourly salary increase to $7.35, on a 15-point scale. We wish to create conditions such that the $7.35 top will be contrasted, and more so by Ss in the End conditions than in the Series, and, in the Series groups, more by Ss who read the series beginning farther from their own position.

The results of the analysis of variance of the judged size of the raise, shown in Table 1, show a significant Messages effect (Series-End), as expected. However, the mean judgments of size, given in Table 2, show that the increase is judged to be larger by the Series than by the End conditions, the reverse of our intention. It is obvious that the $7.35 salary is contrasted by both Series and End conditions -- the 12.842 End mean falls in the category defined as "a rather large increase," and the 13.460 Series mean falls in the scale category defined as "a very large increase." Why the Series conditions should judge it to be larger than do the End Ss is not immediately apparent. This unexpected finding of judgment of smaller size of increase by the End conditions now poses the question of whether the End Ss will actually propose higher salaries for sales clerks than do the Series Ss.

Ss also judged the sufficiency of the proposed raise on a 15-point scale. Since End and Series Ss do differ in the judgment of the size of the increase, a differential judgment of the sufficiency also could be expected. None is found, however, as Table 1 indicates. There is a suggestion of differential anchor effect, however (purported present salary of $2.50 or of $3.25) on judged sufficiency of the raise. This suggestion of an anchor effect also was found for judgment of the size of the raise. It appears that the $2.50 Ss judge the proposed increase to be somewhat larger, as Table 2 shows, and somewhat more "too much" than do $3.25 Ss, as shown in Table 3. This difference in the judged sufficiency of the raise may be accounted for by difference between the Series conditions (collapsing the Range variable) -- $2.50 Ss judge it to be much more "too much" than do the $3.25 Ss ($t = 2.597$; d.f. = 144, $p < .01$).

The discrepancy between $2.50 and $7.35 is in reality larger than that between $3.25 and $7.35, and the differential judgment of size of raise could be expected. The differential judgment of the sufficiency of the raise is of some interest, however, since both $2.50 and $3.25 Ss are given a top figure of $7.35. Looking at the significant between-anchors effect, this differential judgment of sufficiency of the salary increase could be attributed to a contrast with the anchor -- compared to $2.50, $7.35 is perceived as too big a salary increase, but compared to $3.25, it isn't seen as quite so bad. However, this main effect is in large part due to the differential judgments of the two Series conditions -- the $2.50 and $3.25, as pointed out above. There is not a significant difference in judged sufficiency of the raise between the two End conditions. Why such a difference occurs for the Series, but not for the End, condition is not clear.

It will be recalled that the major hypothesis of the study was that assimilation of a discrepant position would be facilitated and more attitude change toward it would result if Ss read a series of messages the first of which advocated an attitudinal position close to Ss' own, compared to Ss who read a series the first of which advocated a position discrepant from one's own. The key concept of discrepancy thus referred to that between

TABLE 1 [1]

Results of Analyses of Variance of
Judgment of Present and Suggested Salaries

Source of Variance	df	Judged Size of Raise		Judged Sufficiency of Raise		Judged Sufficiency of Present Salary	
		MS	F	MS	F	MS	F
A. Anchor	1	10.007	2.917*	22.901	3.624**	9.500	1.760
B. Messages	1	14.533	4.237***	2.902	-	5.158	-
C. Range	1	.323	-	1.480	-	1.684	-
AB	1	.164	-	18.430	2.924*	5.921	1.100
AC	1	5.532	1.613	.797	-	4.448	-
BC	1	3.480	1.014	.006	-	3.790	-
ABC	1	1.481	-	2.375	-	.026	-
Error	144	3.430		6.319		5.398	

* $p < .10$

** $p < .07$

*** $p < .05$

[1] A dash in the F column indicates an F-ratio less than 1.

TABLE 2 [1]

Average Judgments of Size of Suggested Salary Increase

		Messages				
		Series		End		Marginals
	Range	Low (75¢)	High ($1.75)	Low (75¢)	High ($1.75)	
Anchor	$2.50	13.580	13.789	13.526	12.737	13.408
	$3.25	12.947	13.526	12.368	12.737	12.895
Marginals		13.263	13.658	13.132	12.553	

Anchor x Messages Marginals

	Messages		
	Series	End	Marginals
$2.50	13.684	13.132	13.408
$3.25	13.236	12.553	12.895
Marginals	13.460	12.842	

Anchor x Range Marginals

	Range		
	Low (75¢)	High ($1.75)	Marginals
$2.50	13.553	13.263	13.408
$3.25	12.658	13.132	12.895
Marginals	13.105	13.197	

[1] Ratings are on a 15-point scale, 15 = "a very large increase", 1 ="no increase at all."

TABLE 3[1]

Average Judgments of Sufficiency of Suggested Salary Increase

		Messages				
		Series		End		Marginals
	Range	Low (75¢)	High ($1.75)	Low (75¢)	High ($1.75)	
Anchor	$2.50	13.158	13.053	12.421	11.842	12.618
	$3.25	11.787	11.474	11.940	12.158	11.840
Marginals		12.472	12.264	12.180	12.000	

Anchor x Messages Marginals

	Messages		
	Series	End	Marginals
$2.50	13.106	12.132	12.618
$3.25	11.631	12.049	11.840
Marginals	12.368	12.090	

Anchor x Range Marginals

	Range		
	Low (75¢)	High ($1.75)	Marginals
$2.50	12.790	12.448	12.618
$3.25	11.864	11.816	11.840
Marginals	12.327	12.132	

[1] Ratings are on a 15-point scale, 15 = "definitely too much," 1 = "definitely not enough."

own attitude and the position advocated in the first message. We have now determined, however, that contrast of the most extreme position -- the $7.35 salary -- does not occur differentially for the Series and End conditions. Any discussion of discrepancy in this study, then, should probably be phrased in terms of the difference between the bottom anchor and the $7.35, rather than between the bottom anchor and the salary advocated in the first message of the series for Series Ss.

It is clear from the results of the analyses of variance of the "size" and "sufficiency" variables that there is no difference in judgment as a function of the manipulated Region of Acceptance. We had intended to use a scale in which the $7.35 figure would be seen as more discrepant, in the Series conditions, by the low range groups than by the high range. This is not the case, as the means in Tables 2 and 3 make clear. Thus the expectation of differential salaries advocated between ranges no longer stands.

Ss were also asked to judge the sufficiency of the purported present salary of sales clerks. The results of the analysis of variance, given in Table 1, show no main effects or interactions. The mean judgments of the present salary, given in Table 4, show that Ss in all conditions feel the present salary is "not quite enough." Thus we may expect that all Ss will advocate some increase in salary, but that any differential increases would not be a function of different judgments of the sufficiency of the present salary.

Salaries advocated by subjects. Ss were asked to write down the figure which they felt was the average hourly wage to be used as a guideline. Given the finding that Ss in all conditions judged the proposed salary increase to be a large one, it is possible that Ss do not advocate salaries any higher than the anchor they were given. This possibility was investigated by analyzing difference scores -- the difference between the anchor given and

TABLE 4 [1]

Average Judgments of Present Hourly Salary

		Messages				
		Series		End		Marginals
	Range	Low (75¢)	High ($1.75)	Low (75¢)	High ($1.75)	
Anchor	$2.50	4.947	4.526	4.632	4.789	4.724
	$3.25	4.737	4.947	5.158	6.053	5.224
	Marginals	4.842	4.736	4.895	5.421	

Anchor x Messages Marginals

	Messages		
	Series	End	Marginals
$2.50	4.736	4.710	4.724
$3.25	4.842	5.605	5.224
Marginals	4.789	5.158	

Anchor x Range Marginals

	Range		
	Low (75¢)	High ($1.75)	Marginals
$2.50	4.789	4.658	4.724
$3.25	4.947	5.500	5.224
Marginals	4.868	5.079	

[1] Ratings are on a 15-point scale, 15 = "definitely too much," 1 = "definitely not enough."

the salary advocated by each S -- and subjecting them to t-test.[2/] There are no main effects or interactions when these difference scores are tested by analysis of variance, as Table 5 shows. Ss in all conditions did advocate salaries at least $1.13 higher than the anchor, as may be seen in Table 6, and for all conditions, the difference between the salary Ss advocated and the anchor is a significant one. Thus, even though Ss perceived the proposed raise to be very large, this perception did not keep them from moving toward it -- or at least away from the given anchor -- to a significant degree.

The actual figures then were subjected to analysis of variance procedures. Table 5 shows the summary of the results of this analysis. The only significant main effect is for the Anchor factor. The means, given in Table 7 show that the $3.25 Ss advocate a higher salary than do the $2.50. Using two-tail t-test to compare between appropriate cells, it was found that for the End conditions there are no significant differences. Among the Series conditions, however, condition c (low range, $3.25 anchor) advocates a significantly higher salary than does condition a (low range, $2.50 anchor; $t = 1.96$, d.f. = 144, $p < .05$). Condition d (high range, $3.25 anchor) also advocates a higher salary than does condition b (high range, $2.50 anchor), although this difference only approaches significance ($t = 1.75$, d.f. = 144, $p < .08$).

[2/] A method for testing whether a change score differs significantly from what would be expected by chance was suggested by H. J. Fletcher of the Department of Psychology, University of Wisconsin. On the assumption that the obtained error variance is an estimate of the population variance from which the change scores were drawn, the usual t-test formula becomes:

$$\frac{M-mu}{\sqrt{\frac{s^2}{n}}}$$

where M represents the obtained mean change, mu is the population mean change, s^2 is the obtained error variance estimate, and n is the number of observations upon which M is based. The null hypothesis in the present situation, then is that M is drawn from a population of change scores with mu = 0. The estimate of s^2 is the error term from the results of the analysis of variance, with its associated degrees of freedom.

TABLE 5 [1]

Summary of Analyses of Variance,
Salary Advocated by Subjects

Source of Variance	df	Actual Salary MS	Actual Salary F	Difference Scores MS	Difference Scores F	Ratio Change MS	Ratio Change F
A. Anchor	1	13.430	10.260*	.999	-	.015	-
B. Messages	1	.751	-	.496	-	.032	-
C. Range	1	.751	-	1.232	-	.049	-
AB	1	.342	-	.179	-	.012	-
AC	1	.065	-	.000	-	.002	-
BC	1	.668	-	.484	-	.036	-
ABC	1	.002	-	.019	-	.001	-
Error	144	1.309		1.339		.066	

*$p < .01$

[1] A dash in the F column indicates an F-ratio less than 1.

TABLE 6 [1]

Average Difference Between Anchor and Salary Advocated by Subjects

		Messages				
		Series		End		Marginals
	Range	Low (75¢)	High ($1.75)	Low (75¢)	High ($1.75)	
Anchor	$2.50	$1.382	$1.295	$1.655	$1.387	$1.430
	$3.25	1.268	1.221	1.449	1.132	1.268
Marginals		1.325	1.258	1.552	1.260	

Anchor x Messages Marginals

	Messages		
	Series	End	Marginals
$2.50	$1.338	$1.516	$1.430
$3.25	1.244	1.290	1.268
Marginals	1.291	1.403	

Anchor x Range Marginals

	Range		
	Low (75¢)	High ($1.75)	Marginals
$2.50	$1.518	$1.341	$1.430
$3.25	1.358	1.760	1.268
Marginals	1.438	1.550	

[1] All mean changes are positive -- i.e., in the direction of the final salary advocated.

TABLE 7

Average Actual Salaries Advocated by Subjects

		Messages				
		Series		End		Marginals
	Range	Low (75¢)	High ($1.75)	Low (75¢)	High ($1.75)	
Anchor	$2.50	$3.789	$3.821	$4.155	$3.926	$3.923
	$3.25	4.518	4.471	4.699	4.382	4.518
Marginals		4.154	4.146	4.427	4.154	

Anchor x Messages Marginals

	Messages		
	Series	End	Marginals
$2.50	$3.805	$4.040	$3.923
$3.25	4.494	4.540	4.518
Marginals	4.150	4.290	

Anchor x Range Marginals

	Range		
	Low (75¢)	High ($1.75)	Marginals
$2.50	$3.972	$3.874	$3.923
$3.25	4.609	4.426	4.518
Marginals	4.290	4.150	

This differential salary advocated may be attributed to the discrepancy between the anchor and the $7.35 top salary discussed. On the other hand, it could be attributed to the anchor effect by itself. Since all Ss believed that present salaries are not quite enough, as reported above, presumably they would all advocate a salary somewhat higher than clerks now receive. If the higher salary advocated by $2.50 Ss was proportionate to that advocated by $3.25 Ss, we would expect the $3.25 Ss' actual salary figure to be higher than the $2.50 Ss.

A closer investigation of this point was made by again examining the difference scores of all Ss -- the difference between each S's anchor and the salary he advocated. No significant main effects or interactions were found. Although the difference for $2.50 Ss appears to be slightly greater than for $3.25 Ss, as the means in Table 6 show, this is clearly not a significant difference.

A second examination of the effect of the discrepancy between anchor and $7.35 was made by forming a score for each subject which was the ratio of the difference between his anchor and his advocated salary to the difference between his anchor and $7.35 -- i.e., the ratio of observed to advocated "change". Thus for Ss in the $2.50 anchor conditions, the denominator of this ratio was $7.35 - $2.50; for the Ss in the $3.25 anchor groups, the denominator was $7.35 - $3.25. The question here is, of the amount of "change" advocated, how much change was observed? And is this change differential?

Again, no significant main effects or interactions were found, as the summary of the analysis of variance in Table 5 shows. The average ratios, shown in Table 8 indicate that Ss advocated salaries approximately 30% higher than the anchor they were given.

The results of these two analyses -- of difference and ratio scores -- indicate that the discrepancy between the bottom anchor and the $7.35 top makes little difference in the amount of Ss' "movement" toward salary advocated in the final message. It appears, instead, that the differential actual salaries advocated by $2.50 and $3.25 conditions may be attributed to the anchor itself, rather than to the discrepancy between anchor and $7.35.

TABLE 8 [1]

Ratio of "Change" Toward Salary
Discussed in Final Message

		Messages: Series		Messages: End		Marginals
	Range	Low (75¢)	High ($1.75)	Low (75¢)	High ($1.75)	
Anchor	$2.50	.266	.267	.341	.286	.290
	$3.25	.310	.298	.354	.276	.309
Marginals		.288	.282	.348	.281	

Anchor x Messages Marginals

		Messages: Series	Messages: End	Marginals
Anchor	$2.50	.266	.314	.290
	$3.25	.304	.315	.309
Marginals		.285	.314	

Anchor x Range Marginals

		Range: Low (75¢)	Range: High ($1.75)	Marginals
Anchor	$2.50	.304	.276	.290
	$3.25	.332	.287	.309
Marginals		.318	.282	

[1] The formula for calculating the ratio was:

$$\frac{\text{Salary advocated by S - Anchor}}{\text{Salary advocated in final message - Anchor}},$$

or

$$\frac{\text{Observed "Change" from Anchor}}{\text{Advocated "Change" from Anchor}}$$

It should be noted at this point that we have referred throughout this study to the $2.50 or the $3.25 as the anchor against which subsequent salaries would be judged. In fact, it is probably the case that the $7.35 top also serves as an anchor and thus the end points of a scale are defined for Ss. It is interesting that no matter what the anchors, Ss move about 30% of the length of the scale, and we may speculate what salary would have been advocated had a higher top anchor been used. The finding that we may affect the salary advocated by Ss merely by establishing the end points of their judgmental scale follow those of psychophysical judgments. The implications will be discussed further in the concluding discussion of this report.

The failure to find a difference in salary advocated between Series and End conditions also may be noted, since these Ss did differ in their judgment of the size of the raise to $7.35. Series Ss perceived it to be larger than did End Ss, and thus one might have expected a difference in salary Ss advocated.

Ss' judgment of stories and of sales clerks. Ss' judgments of the stories or story read on two bipolar adjective scales, "believable-unbelievable" and "factual-not factual" were analyzed. The summary of the analyses of variance of these two scales, given in Table 9, show there are no significant main effects or interactions. The mean judgments of "believable-unbelievable", given in Table 10, indicate that Ss are either neutral or judge the stories to be slightly believable. Ss also find the stories to be slightly factual, as the means in Table 11 show. Thus while there is no evidence for overwhelmingly positive judgments of the stories, neither is there any suggestion of a negative evaluation. This finding of slightly positive, as opposed to negative, judgment of the stories is in line with the "change" exhibited in all conditions toward the $7.35 salary advocated in the final message.

Ss also judged "sales clerks" on the bipolar adjective scales "valuable-worthless," and "good-bad." There is no difference in judgment of "valuable-worthless," as the summary of the analysis of variance given in Table 12 shows. Mean judgments, given in Table 13, indicate that Ss in all conditions

TABLE 9 [1]

Results of Analyses of Variance
of Judgment of Stories

Source of Variance	df	"Believable" MS	"Believable" F	"Factual" MS	"Factual" F
A. Anchor	1	1.684	-	1.290	-
B. Series	1	.105	-	.948	-
C. Range	1	5.921	1.352	.105	-
AB	1	.237	-	3.789	1.043
AC	1	2.631	-	.421	-
BC	1	.421	-	7.605	2.093
ABC	1	.027	-	.237	-
Error	144	4.381		3.633	

[1]A dash in the F column indicates an F-ratio less than 1.

TABLE 10 [1]

Average Judgments of Story:
"Believable"

		Messages: Series		Messages: End		Marginals
	Range	Low (75¢)	High ($1.75)	Low (75¢)	High ($1.75)	
Anchor	$2.50	4.316	3.570	4.368	3.789	4.011
	$3.25	4.368	4.105	4.210	4.210	4.223
Marginals		4.342	3.842	4.289	4.000	

Anchor x Messages Marginals

	Messages: Series	End	Marginals
$2.50	3.947	4.079	4.011
$3.25	4.237	4.210	4.223
Marginals	4.092	4.145	

Anchor x Range Marginals

	Range: Low (75¢)	High ($1.75)	Marginals
$2.50	4.342	3.684	4.011
$3.25	4.289	4.158	4.223
Marginals	4.316	3.921	

[1] Ratings are on a 7-point scale, 1 = very believable, 7 = very unbelievable, 4 = neutral.

TABLE 11 [1]

Average Judgment of Story:
"Factual"

		Messages				
		Series		End		Marginals
	Range	Low (75¢)	High ($1.75)	Low (75¢)	High ($1.75)	
Anchor	$2.50	3.316	3.632	3.211	2.789	3.237
	$3.25	3.000	3.684	3.684	3.316	3.421
Marginals		3.158	3.658	3.447	3.053	

Anchor x Messages Marginals

	Messages		
	Series	End	Marginals
Anchor $2.50	3.474	3.000	3.237
Anchor $3.25	3.342	3.500	3.421
Marginals	3.408	3.250	

Anchor x Range Marginals

	Range		
	Low (75¢)	High ($1.75)	Marginals
$2.50	3.263	3.211	3.237
$3.25	3.342	3.500	3.421
Marginals	3.303	3.355	

[1] Ratings are on a 7-point scale, 1 = very factual, 7 = very unfactual, 4 = neutral.

TABLE 12 [1]

Results of Analyses of Variance of Judgment of "Sales Clerks"

Source of Variance	df	"Valuable" MS	F	"Good" MS	F
A. Anchor	1	.237	-	.006	-
B. Messages	1	.237	-	2.901	2.077
C. Range	1	.027	-	.006	-
AB	1	.658	-	6.323	4.526*
AC	1	.236	-	2.902	2.077
BC	1	.026	-	.165	-
ABC	1	3.185	2.068	9.006	6.447*
Error	144	1.540		1.397	

[1] A dash in the F column indicates the F-ratio is less than 1.

*$p < .05$

TABLE 13 [1]

Average Judgments of "Sales Clerks": "Valuable"

		Messages: Series		Messages: End		Marginals
	Range	Low (75¢)	High ($1.75)	Low (75¢)	High ($1.75)	
Anchor	$2.50	2.158	2.526	2.368	2.211	2.316
	$3.25	2.316	1.947	2.211	2.474	2.236
Marginals		2.237	2.237	2.289	2.342	

Anchor x Messages Marginals

	Messages: Series	End	Marginals
Anchor $2.50	2.342	2.289	2.316
Anchor $3.25	2.132	2.342	2.236
Marginals	2.236	2.316	

Anchor x Range Marginals

	Range: Low (75¢)	High ($1.75)	Marginals
$2.50	2.263	2.368	2.316
$3.25	2.263	2.211	2.236
Marginals	2.263	2.289	

[1] Ratings are on a 7-point scale, 1 = very valuable, 7 = very worthless, 4 = neutral.

TABLE 14 [1]

Average Judgments of "Sales Clerks": "Good"

		Messages				
		Series		End		Marginals
	Range	Low (75¢)	High ($1.75)	Low (75¢)	High ($1.75)	
Anchor	$2.50	3.053	3.737	2.789	2.632	3.053
	$3.25	3.421	2.579	3.000	3.263	3.066
Marginals		3.237	3.158	2.895	2.947	

Anchor x Messages Marginals

	Messages		
	Series	End	Marginals
$2.50	3.395	2.711	3.053
$3.25	3.000	3.132	3.066
Marginals	3.197	2.921	

Anchor x Range Marginals

	Range		
	Low (75¢)	High ($1.75)	Marginals
$2.50	2.921	3.184	3.053
$3.25	3.210	2.921	3.066
Marginals	3.066	3.053	

[1] Ratings are on a 7-point scale, 1 = very good, 7 = very bad, 4 = neutral.

STUDY II

This study investigates the effectiveness for facilitating attitude change of a second procedure for increasing the likelihood that a moderately discrepant position will be assimilated, rather than contrasted. It was hypothesized that a moderately discrepant attitudinal position would be seen as closer to S's own position if it were presented in such a way that the moderate position would be contrasted to a highly discrepant position, rather than to one's own position. The procedure used was to prepare two messages, one discussing a moderately discrepant position, the other discussing a more discrepant position. In one condition, Ss would read the most discrepant message first, presumably contrasting it, and then the more moderate message. We expect that the moderate position, in contrast to the more discrepant message, will be perceived as less discrepant than it is, and will be assimilated toward S's own position. In a second condition, the messages are presented in the reverse order -- the moderately discrepant followed by the highly discrepant. It is expected here that the moderately discrepant message by itself will be contrasted to own position, as will the subsequent more discrepant message, and little or no movement toward these discrepant positions will be found.

Method

Messages. Two of the messages from Study I were used in this study, the first and last, and the salaries reportedly discussed were $7.35 and $6.15. For the purposes of this study, present salary and range received by sales clerks was held constant. To enhance the discrepancy between the anchor and range and the salaries advocated in the messages, the $2.50, low range (75 cents--$2.25 - $3.00) anchor was selected.

Design. Two experimental conditions were created, one of which received the messages in the most discrepant ($7.35) - moderately discrepant ($6.15) order, and the other of which received the messages in the reverse order. The wording of the two messages was identical except that the salary figure reportedly discussed at each meeting was varied. A control group which read only the final message advocating a raise to $6.15 was added. The $7.35 group from Study I served as this control in this study as well. There are thus four conditions, with 19 Ss in each.

Procedure. Ss first read the one or two messages given them appropriate to the condition in which they were serving, and then completed the same questions as answered by Ss in Study I. When asked their judgment of the size and sufficiency of the raise, the figure used in the questions was that salary advocated in the final (or only) message read. Thus $7.35-$6.15 Ss judged the size of an increase to $6.15, while $6.15-$7.35 Ss judged the increase to $7.35.

Results

As in Study I, a necessary condition to test the hypothesis was that the salary selected as discrepant would be perceived as such and contrasted. We would expect, here, that the $6.15-only condition would contrast the increase and perceive it to be larger than would the $7.35-$6.15 condition. A difference would not necessarily occur between the $7.35-only and $6.15-$7.35 conditions in judging the size of the raise to $7.35. Examination of Ss' judgments of the size and sufficiency of the salary increase will indicate whether this is in fact the case.

Ss' perception of advocated and present salaries. As Table 15 shows, that, as expected, there is not a significant main effect for the messages (Series-End) variable, in judgment of size of the raise. The mean judgments of the size also show that all conditions find it to be a large one. However, comparing between the relevant cell means, the expected difference between the $7.35-$6.15 and $6.15-only conditions is not found. Neither is there a difference between the $6.15-$7.35 and $7.35-only conditions, but this is not unexpected.

There is, however, a significant difference in the judgment of the size of the increase as a function of the final salary advocated in the messages. Ss told the final salary was $7.35 judge the increase to be larger than do Ss told the final salary was $6.15. Comparing between cells, we see that this difference is not a significant one when comparing between the two Series conditions, although the $6.15-$7.35 tends to judge the increase to be larger than do the $7.35-$6.15 Ss. There is a significant difference between the two End groups -- the $7.35-only condition judges the raise to be larger than do the $6.15 Ss. This would not be particularly

TABLE 15[1]

Judgment of Present and Suggested Salaries

Source of Variance	df	Judged Size of Raise MS	Judged Size of Raise F	Judged Sufficiency of Raise MS	Judged Sufficiency of Raise F	Judged Sufficiency of Present Salary MS	Judged Sufficiency of Present Salary F
Final Salary Advocated	1	24.329	4.300*	44.263	6.398*	.329	-
Messages Read	1	.329	-	.053	-	.118	-
Interaction	1	2.960	-	1.316	-	11.066	2.311
Error	72	5.738		6.918		4.789	

[1]A dash in the F column indicates an F-ratio less than 1.

*$p < .05$

MEAN SCORES

Size of Raise[1]

		Messages Read: Series	Messages Read: End	Marginals
Final Salary Advocated	$6.15	12.526	12.000	12.263
	$7.35	13.263	13.526	13.395
Marginals		12.895	12.763	

Sufficiency of Raise[2]

	Messages Read: Series	Messages Read: End	Marginals
$6.15	10.842	11.158	11.000
$7.35	12.632	12.421	12.526
	11.737	11.789	

Sufficiency of Present Salary[3]

	Messages Read: Series	Messages Read: End	Marginals
$6.15	4.421	5.263	4.842
$7.35	5.316	4.632	4.974
	4.868	4.947	

[1]Responses are on a 15-point scale, 15 = "a very large increase," 1 = "no increase at all."

[2]Responses are on a 15-point scale, 15 = "definitely too much," 1 = "definitely not enough." Only the A (Series, 6.15) vs. B (Series, 7.35) comparison is significant, $t = 2.098$, $p < .05$.

[3]Responses are on a 15-point scale, 15 = "definitely too much," 1 = "definitely not enough." None of the appropriate between-group comparisons is significant.

unexpected if both End groups also judged the increase to be larger than do the Series conditions -- if they had contrasted the single discrepant messages as intended. This was not the case, however, and in fact the $6.15 condition judges the increase to be "least large" of the four conditions, although this is not a significant difference in all cases. Clearly, when compared to the present salary of $2.50 an hour, the $6.15 salary by itself is not perceived to be as discrepant as the manipulation required and intended.

Looking at the judgments of the sufficiency of the raise, also shown in Table 15, we find again a significant difference as a function of final salary advocated -- $7.35 Ss judge it to be more "too much" than do $6.15 Ss. Comparing between cell means, only the comparison between $7.35-$6.15 and $6.15-$7.35 conditions is significant, the $6.15-$7.35 group judging it to be more "too much" than do Ss in the reverse condition. These findings only seem to underline the indications that the perceptions are based on the scale which was established for Ss by the salary scales given them, whether or not the series or end messages were read.

Ss also judge the sufficiency of the present salary. Since all Ss were given the same anchor, we would not expect any differences between conditions, and there is none, as Table 15 shows.

Salaries advocated by subjects. Despite the fact that the differential judgments by Series and End groups of the extremity of scale required was not found, it is still worthwhile to investigate whether different salaries were proposed by Ss as a function of the Messages Read (Series-End) and Final Salary Advocated ($6.15 or $7.35) variables. As in Study I, the dependent variable here is the response to the question, "What average hourly wage do you feel should be used by employers as a basic salary guideline?"

The analysis of the actual mean salaries advocated are given in Table 16, as is the analysis of difference scores -- the difference between the anchor and the salary advocated by Ss. (All differences are significantly different from zero.)

While the analysis of actual salaries proposed finds no significant main effects, a significant interaction between Final Salary Advocated and Messages Read was found. The largest salaries are advocated by the $7.35-only and the $7.35-$6.15 groups, the smallest by the $6.15-only and

TABLE 16[1]

Salary Advocated by Subjects

Source of Variance	df	Actual Salary MS	Actual Salary F	Difference Scores MS	Difference Scores F	Ratio Change[2] MS	Ratio Change[2] F
Final Salary Advocated	1	2.023	1.798	2.023	1.798	.004	-
Messages Read	1	.906	-	.906	-	.092	1.460
Interaction	1	4.751	4.223*	4.751	4.223*	.308	4.889*
Error	72	1.125		1.125		.063	

[1]A dash in the F column indicates an F-ratio less than 1.

*$p < .05$

[2]The ratio is: $\frac{\text{Salary advocated by S - anchor (\$2.50)}}{\text{Salary advocated in final message - \$2.50}}$.

MEAN SCORES

Actual Salary

Final Salary Advocated \ Messages Read	Series	End	Marginals
$6.15	$4.047	$3.329	$3.688
$7.35	3.874	4.155	4.014
Marginals	3.960	3.742	

Difference Scores[3]

Final Salary Advocated \ Messages Read	Series	End	Marginals
$6.15	$1.547	$ .829	$1.188
$7.35	1.374	1.655	1.514
	1.460	1.242	

Ratio Change

Final Salary Advocated \ Messages Read	Series	End	Marginals
$6.15	.424	.227	.326
$7.35	.283	.341	.312
	.353	.284	

[3]Difference mean scores are positive--i.e., in the direction of the salary proposed in the final message.

$6.15-$7.35 conditions. Only the comparison between $6.15-only and $7.35-$6.15; and between $6.15-only and $7.35-only are significant, however (for the first comparison, $t = 2.087$, d.f. = 72, $p < .05$; for the second, $t = 2.401$, d.f. = 72, $p < .05$).

The main hypothesis originally posed for this study was that the $7.35-$6.15 condition would tend to assimilate the $6.15 position, and would change more toward it than would the $6.15 condition. This is the finding. It is difficult to attribute this to contrast and assimilation phenomena, however, since the $7.35-only condition also changes more than does the $6.15. Furthermore, as reported above, the $6.15-only condition judges the raise to be "less large" than do the other conditions. Some other explanation therefore must be found.

The results of Study I suggest that discrepancy between the bottom and top anchors does not adequately account for salaries advocated by Ss, and one implication of the findings was that merely establishing the scale -- the top and bottom of the salary scale -- leads to differential salaries advocated by Ss. Study II allows us to investigate this question further.

As in Study I, a score was formed for each subject by calculating the ratio of his "change" (the difference between anchor and the salary he proposed) to the advocated "change" (the difference between the anchor and the salary advocated in the final message). For Ss who read the last message proposing a $6.15 average wage, the denominator thus was $6.15 - $2.50, while for the other conditions, the denominator was $7.35 - $2.50. The question posed is, of the total distance proposed, how far did Ss "move"?

A significant interaction was found, as Table 16 shows. As in the analysis of actual and difference scores, the greatest "change" is exhibited by the $7.35-only and the $7.35-$6.15 conditions. The $7.35-$6.15 group moved significantly more than did the $6.15-only condition -- 42% of the way vs. 22% ($t = 2.426$, d.f. = 72, $p < .01$). There is also a suggestion that the $7.35-$6.15 group moved proportionately farther than did the $6.15-$7.35 group, but this difference only approaches significance ($t = 1.736$, d.f. = 72, $p < .08$).

A particularly interesting finding here is the comparatively small salary advocated by the $6.15-only condition, whether comparisons are of

actual salary figure, difference scores, or ratio scores, and the further indication that the three other conditions are similar in the salaries they advocate. The possibility that the discrepancy between anchor and final salary advocated could account for this must be ruled out, since the $7.35-$6.15 condition advocated a significantly higher salary than did the $6.15-only condition, but the discrepancy is the same for both these conditions.

The most striking distinction between the $6.15-only condition and the other three is that it is the only group which never received any indication that a $7.35 salary had been considered. Even though the $7.35-$6.15 condition was told that the committee was proposing $6.15 as the average salary, they knew that a higher salary had been discussed and even agreed upon at one meeting. For these Ss, as for the other two groups who had read a message discussing the $7.35 salary, a scale ranging from $2.50 to $7.35 may have been established. One implication we may tentatively draw from the data is that it is this scale against which Ss judge what salary clerks should receive, rather than using the salary advocated in the final message as the anchor against which to determine salary, at least in the situation where the upper limit of the scale (here the $7.35) is not of itself rejected.

This possibility was investigated further by examining just the three conditions in which a $2.50 to $7.35 scale could be used. Ratio scores were formed using this discrepancy as the denominator and, as before, the difference between the $2.50 anchor and the salary advocated by S as the numerator. The results, shown in Table 17, certainly fit in with the reasoning that Ss are using the full scale given, even though for the $7.35-$6.15 condition the full scale is not proposed, in determining what salary they think clerks should receive. There is no significant between-group difference, the groups advocating salaries approximately 30% above the bottom of the scale.

Ss' judgments of the stories and of sales clerks. Ss' judgment of the "believability" and the "factualness" of the stories or story they had read were made on two 7-point scales, the end points defined as "believable-unbelievable" and "factual-not factual". Table 18 shows a significant difference in judged "believableness" as a function of the final salary advocated,

TABLE 17[1]

Analysis of Ratio Scores of Conditions
with $2.50-$7.35 Scale

Source of Variance	df	MS	F
Groups	2	.016	-
Error	54	.052	

MEANS

$6.15-$7.35	$7.35-$6.15	$7.35-only
.283	.319	.341

[1]A dash in the F column indicates the F-ratio is less than 1.

TABLE 18 [1]

Judgment of Stories

Source of Variance	df	"Believable" MS	F	"Factual" MS	F
Final Salary Advocated	1	19.000	4.303*	1.066	-
Messages Read	1	2.579	-	1.593	-
Interaction	1	.052	-	2.223	-
Error	72	4.415		3.655	

[1]A dash in the F column indicates an F-ratio less than 1.

*$p < .05$

MEAN JUDGMENTS

"Believable"[1]

		Messages Read: Series	Messages Read: End	Marginals
Final Salary Advocated	$6.15	3.737	3.421	3.579
	$7.35	4.789	4.368	4.579
Marginals		4.263	3.895	

"Factual"[1]

	Messages Read: Series	Messages Read: End	Marginals
$6.15	3.737	3.105	3.421
$7.35	3.158	3.211	3.184
Marginals	3.447	3.158	

[1]Responses are on a 7-point scale, 1 = most believable (or not factual), 7 = most unbelievable (or most unfactual).
None of the appropriate between-condition comparisons is significant.

but no difference in judged "factualness." In judging the story on the "believable-unbelievable" scale, Ss tend toward neutrality, but $7.35 Ss judge them somewhat less believable than do the $6.15 Ss. Although this is a significant main effect, it obviously did not cause the $7.35 Ss to advocate any lower salaries for clerks than did $6.15 Ss. Ss in all conditions rate the stories to be somewhat factual.

Ss in all conditions judge sales clerks to be valuable and good, as Table 19 indicates. There is a significant "messages read" effect, Series conditions judging clerks to be more valuable than do End conditions. Why this should be so is not clear. A check of the ratings by Ss who had and Ss who had not worked as sales clerks showed no difference between them in judgment of clerks, and this possible explanation may be ruled out.

TABLE 19[1]

Judgment of "Sales Clerks"

Source of Variance	df	"Valuable" MS	"Valuable" F	"Good" MS	"Good" F
Final Salary Advocated	1	.842	-	.013	-
Messages Read	1	5.264	3.925*	.645	-
Interaction	1	0.000	0.000	1.592	-
Error	72	1.341		1.788	

[1]A dash in the F column indicates an F-ratio less than 1.

*p< .06

MEAN JUDGMENTS[2]

"Valuable"

		Messages Read: Series	Messages Read: End	Marginals
Final Salary Advocated	$6.15	2.053	2.579	2.316
	$7.35	1.842	2.368	2.105
Marginals		1.947	2.474	

"Good"

		Messages Read: Series	Messages Read: End	Marginals
	$6.15	2.947	3.053	3.000
	$7.35	3.263	2.789	3.026
Marginals		3.105	2.921	

[2]Responses are on a 7-point scale, 1 = most valuable (or good), 7 = most worthless (or bad), 4 = neutral.

STUDY III

The top salary used in the previous studies was not contrasted differentially by Series and End conditions, and did not cause any Ss to reject it in the sense of failing to move toward that final salary figure when asked what salary they felt clerks should receive. It was therefore not possible to test the procedures for increasing the assimilation of and attitude change toward the discrepant position. It was then decided to try to find a group of Ss who would be more likely to reject the extreme salary proposed, and determine whether there then was any difference in the salaries advocated as a function of the method of presenting the information. Believing that adults who had probably worked at some occupation would be more realistic than would high school students, adults enrolled in business courses in a local evening adult school program were asked to participate in this third study.

Because of time considerations, a replication of only Study I was done, and this only a partial one. The two anchor salaries of $2.50 and $3.25 formed the Anchor variable, as before, and the Series-End conditions also were included. The same "high range" ($1.75) information was given to all Ss, however, a range of from $1.75 to $3.50 and from $2.50 to $4.25 perhaps appearing more believable to adults than the smaller ranges. The procedure for testing was the same as already described for Study I, except that testing was done in four different evening classes in an attempt to obtain a fairly large number of subjects. Unfortunately, because of absences and failure of several adults present to answer all questions, only 36 questionnaires were available for analysis, 9 Ss per cell.

Results

The findings can be quickly stated. First, as Table 20 shows, the raise was judged to be "a very large increase" and "definitely too much" by Ss in all conditions. There was no difference as a function of anchor or messages read. All conditions also judged the present salary as "not quite enough."

TABLE 20 [1]

Judgment of Present and Suggested Salaries

Source of Variance	df	Judged Size of Raise MS	F	Judged Sufficiency of Raise MS	F	Judged Sufficiency of Present Salary MS	F
Anchor	1	.028	-	.695	-	8.028	1.035
Messages Read	1	.028	-	.028	-	6.250	-
Interaction	1	.250	-	.249	-	.250	-
Error	32	2.281		3.333		7.757	

[1]A dash in the F column indicates an F-ratio less than 1.

MEAN SCORES

Size of Raise[1]

Anchor	Messages Read: Series	End	Marginals
$2.50	13.444	13.333	13.389
$3.25	13.222	13.444	13.333
Marginals	13.333	13.389	

Sufficiency of Raise[2]

Anchor	Messages Read: Series	End	Marginals
$2.50	13.000	13.111	13.056
$3.25	13.444	13.222	13.333
	13.222	13.167	

Sufficiency of Present Salary[2]

Anchor	Messages Read: Series	End	Marginals
$2.50	6.111	5.111	5.611
$3.25	6.889	6.222	6.556
	6.500	5.667	

[1]Responses are on a 15-point scale, 15 = "a very large increase," 1 = "no increase at all."

[2]Responses are on a 15-point scale, 15 = "definitely too much," 1 = "definitely not enough."

The mean judgments of the size and sufficiency of the raise are somewhat more extreme than are those of students, although the differences may not be significant ones. Mean judgments of the sufficiency of the present salary tend more toward neutrality for the adults than was the case for students, although again this may not be statistically significant. It is interesting to note that even among the adults there is no difference between those told the present salary is $2.50 and those told it is $3.25 in its judged sufficiency. No condition judges the given salary as "about right" or "too much." It would be expected, then, that salaries somewhat higher than the anchors would be advocated by the adults.

Although the mean salaries advocated, shown in Table 21, are higher than the anchors given, the difference between the anchor and salary advocated is significant in only one condition, the $6.15-only one, where an average increase of 86 cents above the anchor was advocated ($t = 2.016$, $d.f. = 32$, $p < .06$). There are also no significant main effects or interactions when the actual salary figures advocated by Ss and the ratio of movement scores are analyzed. The mean ratio scores shown in Table 21 are considerably smaller than those found in the two previous studies.

It appears that we are able to manipulate level of present salaries for adult groups (indicated by the lack of difference between conditions in judged sufficiency of present salary), and that adults do not differ significantly from students in their judgment of the size of the proposed salary increase. Despite this, the consequences of these judgments are quite different for adults than they are for students.

Examination of adults' ratings of the stories hints at an explanation. While in Studies I and II no condition mean judgment of the stories was negative, Table 22 shows that the $3.25 anchor groups judge the stories to be "unbelievable." The $2.50 Ss, on the other hand, rate them on the "believable" side of the scale, a significantly different judgment from that of the $3.25 Ss. Actually, only the $6.15-only condition rates the story somewhat believable, and it is this group which advocates a salary significantly higher than the anchor salary. The $7.35-only condition

TABLE 21 [1]

Salary Advocated by Subjects

Source of Variance	df	Actual Salary MS	Actual Salary F	Difference Scores MS	Difference Scores F	Ratio Change MS	Ratio Change F
Anchor	1	1.868	2.272	1.868	2.272	.019	-
Messages Read	1	.002	-	.002	-	.000	-
Interaction	1	.614	-	.614	-	.030	-
Error	32	.822		.822		.041	

[1] A dash in the F column indicates an F-ratio less than 1.

MEAN SCORES

Actual Salary

Anchor \ Messages Read	Series	End	Marginals
$2.50	$3.083	$3.361	$3.222
$3.25	3.800	3.556	3.678
Marginals	3.442	3.458	

Difference Scores

Anchor \ Messages Read	Series	End	Marginals
$2.50	$.583	$.861	$.722
$3.25	.550	.306	.428
	.566	.584	

Ratio Change

Anchor \ Messages Read	Series	End	Marginals
$2.50	.120	.177	.149
$3.25	.134	.075	.104
	.127	.126	

TABLE 22[1]

Judgment of Stories

Source of Variance	df	"Believable" MS	"Believable" F	"Factual" MS	"Factual" F
Anchor	1	17.361	4.026*	4.694	-
Messages Read	1	3.361	-	1.361	-
Interaction	1	2.250	-	8.028	1.659
Error	32	4.312		4.840	

[1]A dash in the F column indicates an F-ratio less than 1.
*$p \approx .06$

MEAN JUDGMENTS

"Believable"[1]

		Messages Read: Series	Messages Read: End	Marginals
Anchor	$2.50	4.333	3.222	3.778
	$3.25	5.222	5.111	5.167
Marginals		4.778	4.167	

"Factual"[1]

		Messages Read: Series	Messages Read: End	Marginals
	$2.50	3.889	3.333	3.611
	$3.25	3.667	5.000	4.333
Marginals		3.778	4.167	

[1]Responses are on a 7-point scale, 1 = most believable (or not factual), 7 = most unbelievable (or most unfactual).

rates the story as somewhat unfactual, and the salaries advocated by this group are the lowest, in terms of difference from the anchor or ratio of change.

These between-cell differences are, unfortunately, not significantly different, and the discussion above is intended to be only speculative. It is reasonable, of course, that Ss who doubt the "believableness" of the stories will be little affected by them, but whether this explanation is adequate cannot be determined here.

Finally, adult Ss' judgment of sales clerks, shown in Table 23, indicate that they do judge clerks to be "valuable" and "good." The interaction for "valuable" may be attributed to the Series-$3.25 cell, in which one subject rated clerks as extremely bad. With such a small n, this extreme judgment of course affects the average considerably.

TABLE 23[1]

Judgment of "Sales Clerks"

Source of Variance	d.f.	"Valuable" MS	"Valuable" F	"Good" MS	"Good" F
Anchor	1	1.000	-	.250	-
Messages Read	1	4.000	3.017	.694	-
Interaction	1	7.112	5.363*	.028	-
Error	32	1.326		1.493	

[1]A dash in the F column indicates an F-ratio less than 1.
*$p < .05$

MEAN JUDGMENTS[2]

"Valuable"

		Messages Read: Series	Messages Read: End	Marginals
Anchor	$2.50	1.333	1.556	1.444
	$3.25	2.556	1.000	1.778
Marginals		1.944	1.278	

"Good"

		Messages Read: Series	Messages Read: End	Marginals
	$2.50	2.778	2.556	2.667
	$3.25	3.000	2.667	2.833
Marginals		2.889	2.611	

[2]Responses are on a 7-point scale, 1 = most valuable (or good), 7 = most worthless (or bad), 4 = neutral.

DISCUSSION

The primary purpose of the studies reported here was to investigate the hypothesis, derived from adaptation-level theory (Helson, 1964) and the social judgment formulation of Sherif and Hovland (1961), that changing the scale against which Ss judge an attitudinal position could change Ss' own attitude as well. Strong support for this hypothesis was found in two studies in which high school students participated -- proportionate "change" from the bottom anchor of the scale was found, regardless of what that anchor was, the net result being that Ss receiving a higher bottom anchor advocate higher salaries for clerks than do Ss receiving a lower anchor.

This advocacy of salaries above the anchor given cannot be explained, as had been anticipated, as a function of contrast and assimilation effects, however. In fact, the two procedures for heightening assimilation of a discrepant position which were to be tested in these studies could not in fact be tested because differential contrast of a highly discrepant position -- the $7.35 top anchor -- was not established. Neither do the data support an interpretation that discrepancy between the top and bottom anchors may account for the findings, since Ss in the first two studies advocate salaries for clerks which are proportionately the same, when the same top anchor is given ($7.35). When a lower top anchor is given, however (the $6.15-only condition in Study II), proportionately less "movement" is shown, compared to the condition in which discrepancy is the same (the $7.35-$6.15 condition). The end points of the scale therefore seem to be the factor determining what salary Ss advocate.

The issue for experimental manipulation in these studies -- proposed salary increases for sales clerks -- was selected because of the unfamiliarity of high school students with it, thus presumably allowing us to establish for Ss the variables under examination. These were the discrepancy between "own attitude", defined by the present salary Ss were told that clerks now receive, and the salary advocated in the first of a series of messages read by Ss; and "region of acceptance", defined as the range between top and bottom salaries clerks now receive.

The finding that Ss do not differ in their judgment of the sufficiency of the present salary or of the "factualness" of the stories, regardless of whether they were told it was an average of $2.50 or $3.25 an hour, suggest that the establishment of the "own attitude" was successful. The problem, as far as allowing a test of the experimental hypothesis is concerned, arose because all Ss contrasted the top anchor, judging the salary increase to be a large one, regardless of whether they read only the most extreme message or a series of messages leading up to it. In the first study, it was intended that the "step-by-step" procedure of gradually working toward the extreme position by having Ss read a series of increasingly discrepant messages should cause Ss to assimilate the final position, or at least contrast it less than the Ss who read only the final message. Instead, just the opposite effect was found -- Series Ss judged the raise to $7.35 to be a larger one than did End Ss. A corresponding reduction in the proportionate difference between anchor and salary Ss advocated did not occur, however. Neither did the fact that all Ss judged the raise to be a large one result in failure to advocate higher salaries than clerks now receive.

It may be that on issues with which Ss are relatively unfamiliar, a scale against which Ss judge attitudinal positions, and which determines Ss own attitudes, may be established very easily, not through any laborious step-by-step procedure or one designed to cause assimilation of a moderate position by contrast with a discrepant one, but merely by telling Ss what the end points of the scale are. For those who prefer to think of us as rational beings basing our opinions and attitudes on facts, this suggestion of the manipulability of attitudes by such a simple method is distasteful and quite frightening. In a sense, of course, Ss were using "facts" as a basis for their proposed salaries -- the facts being the end points of the salary scale. The trouble is that these facts are not correct.

The findings of the third study, in which adults served, indicate that Ss who are familiar with an issue -- perhaps more aware of the reality of the situation presented -- will not be swayed by establishing different reference scales. Salaries advocated by adults were only slightly higher than the anchors given, and there was no significant difference between

conditions in the actual salary advocated, either as a function of Anchor ($2.50 or $3.25) or Messages Read (Series-End). The data suggest that adults judged the $7.35 top salary to be more discrepant than did student Ss, and that they find the stories less believable than did students. When one has information or knowledge about a topic, then, one may use his own anchors for judging items and for selecting his own belief or attitude position, rather than anchors provided him.

A study by Dillehay (1965) provides some support for this notion, although he does not interpret his data in this way. He found that in judging the favorableness of the position expressed in a communication about fluoridation, nurses who were in a position to know the facts about fluoridation were more realistic than were non-nurses, even though the attitudes of both groups toward fluoridation were the same. (Dillehay compared these judgments with the mean judgment of a sample of non-nurses with a range of attitudes toward fluoridation. The mean judgment of the non-nurses is taken as "a reflection of the consensus placement of the communication" (p. 639) by Dillehay, and may be considered as "reality" in our discussion here.) Dillehay interprets this finding from a dissonance theory viewpoint -- less dissonance should result from reading a discrepant position if one has cognitive support for one's own position, and therefore perceptual distortion of that discrepant position would be unnecessary. It seems as likely that the more realistic judgment of the position of the communication by nurses than by non-nurses could just as well be explained as a reflection of their greater knowledge or awareness of the range of opinions about fluoridation which exist, and thus their more accurate placement of the communication on the scale of possible opinions. In other words, they were using a wider reference scale against which to judge the position of the communication than were the non-nurses.

In the third study reported here, a similar explanation of the findings is possible. The failure to advocate salaries higher than the anchor (except in one condition) may reflect the use of a more realistic, or at least a different, scale than the one provided in the messages.

A theoretical approach which would lead to the expectation of such a

finding is proposed by Upshaw (1962, 1965) and discussed further by Ostrom (1966). Termed a "variable perspective" or simply "perspective" theory, it stems from a paper by Volkmann (1951), who proposes that "perspective is the range of stimuli which the judge takes into account when performing an absolute judgment task. The defining stimuli of this range are the end stimuli" (Ostrom, p. 136). Upshaw proposes that in judging a series of attitudinal statements, the most extreme statements anchor the ends of the scale -- the most pro and con anchors, and establish the perspective of the S for judging the position of all other statements falling between the anchors. Upshaw also discusses the relative effect, which his study found, of whether one's own attitude falls within the range provided or not, on the judgment of the position of attitudinal statements.

> Applied to the judgmental task of equal-appearing intervals, the variable series interpretation assumes, in effect, that the own attitudes of judges are an extraneous variable which acquires importance only when the item series is such that the positions of some judges are outside it. A reference scale, defined by end anchors corresponding to the most pro and anti items, is inherent in the series. If a judge has an own position that is outside the scale implied by the series, he does not adopt that scale. Instead, he adopts one that is defined by his own position serving as an end anchor at the aborted end of the continuum (i.e., the end of the scale which does not extend far enough to include own attitude. Investigators explanation.) (Upshaw, 1962, p. 95).

In the studies conducted and reported here, it is quite likely that high school students used the scale provided them as their perspective, while adults did not, their "own attitude" lying below the scale provided, or at least their idea of a realistic top anchor being less than the $7.35 provided by the messages, thus attenuating the magnitude of their responses. Further research is of course required to provide any direct evidence that this explanation holds for the present studies.

One further finding is worthy of note, the fact that in Study I, Ss who had read a series of messages leading up to the extreme $7.35 anchor judged the salary increase to be larger than did Ss who read only the final message, which gave the present salary anchor and the proposed increase to $7.35. It would appear that the more categories a scale is divided into,

the "longer" the distance between the ends of the scale is judged to be. A paper by Berkowitz (1960) discusses a number of studies which investigate the consequences of the broadening of judgmental categories on "psychological distance" -- in the present studies, the judged distance between anchors.

Berkowitz indicates that broader categories reduce the psychological distance between a standard and the evaluated stimuli, and, as a consequence, weaken the judgmental contrast (from the reverse point of view, strengthen an assimilation effect). If this were the case, we would expect that the Ss who read only the End message and judged it less large than did Series Ss would move more toward the $7.35 anchor than do the Series Ss, but in fact there is no significant difference in salary advocated between Ss as a function of Messages Read (Series-End). This could be because the differential judgments of size of the raise are not great enough to lead to different advocated salaries, rather than because perceived psychological distance as a function of width and number of categories is not a valid predictor of varying contrast and assimilation effects. A study in which greater differences in discrepancy were perceived by Ss is required to investigate this point further. The significance of finding that perceived psychological distance may be manipulated by providing more or fewer categories of judgment for Ss to use, and that manipulating psychological distance would be followed by contrast or assimilation and attitude change is apparent.

In summary, although the studies were not able to investigate the procedures designed to heighten assimilation and change toward a discrepant attitudinal position, the findings do support the hypothesis that changing the reference scale against which Ss judge the discrepant position leads to differential attitudes expressed by Ss themselves. A number of studies have shown that judgments of the position of attitudinal items are affected by the context in which they are presented (Upshaw, 1962, 1965; Ostrom, 1966; Atkins, 1966; Sherif and Hovland, 1961). The present studies indicate that expressed attitudes of Ss are also affected by the context of anchors establishing a reference scale. Further research is required to investigate the generality of this finding to other situations.

Significance of the Findings for Education

Given that education, in the sense of the transmittal of information, attitudes, feelings, etc., is assumed to occur through a process of acquisition of facts and the reasoned integration of facts to form attitudes, beliefs, and opinions, the results of these studies are disquieting. The implication is that one may acquire information and attitudes through quite unreasoned processes, merely as a function of the range of information or opinions to which one is exposed. It should be remembered that the messages used in these studies did not ask Ss to change their attitudes away from the anchor. They merely reported that various salaries had been discussed, and that one particular salary had been adopted by a committee. Asking Ss what they believed clerks should be paid may be an implied command to change, of course.

There is a sense in which the responses of the high school students to this question may be considered a rational one. They apparently did not know what the real hourly wage of clerks is, and when asked to name a figure, they may have been forced to rely on the only information they had. Their salary proposals, then, were based on information and were thus rational. In a society in which we must rely on information provided by others, rather than ourselves find out the answer to everything, the necessity to choose our sources of information carefully becomes apparent. If there is no apparent reason why we should not believe information presented to us, we very likely can easily accept wrong facts and wrong interpretations, leading us inevitably to wrong conclusions and perhaps behavior.

In the situation where Ss did presumably have a more realistic picture of the world of sales clerks' salaries, the manipulated scale did not have the effect of leading to higher proposed salaries. Adults appear to have used their own reference scale, rather than the experimental one. Whether assimilation and attitude change can be facilitated in this kind of situation by the procedures which originally were to be tested in the present studies remains to be investigated.

It appears, then, that individuals who do not already have established internal reference scales against which to judge new incoming information

are in a particularly defenseless position. Children in school are of course in this very situation. Their encouragement to gather "all" the facts and to consider the source of their information is clearly important, even crucial, as is the role of the teacher in fostering such behavior.

In terms of offering methods for inculcating or changing attitudes of students, teachers, administrators and parents, the results offer some suggestions for topics with which these populations are unfamiliar. Whether the experimental findings can so easily be applied in the "real" world, of course, remains to be seen. If they are effective, the place for the educator may be to teach "defensive" techniques against them, however, rather than using them in his own attempts to change attitudes.

SUMMARY

Three studies were conducted to investigate a hypothesis derived from adaptation-level theory (Helson, 1964) and the social judgment formulation of Sherif and Hovland (1961) that changing the scale against which Ss judge an attitudinal position could change Ss' own attitude as well.

Procedures. Two procedures suggested by the contrast and assimilation phenomena for facilitating attitude change were investigated: (1) enhance the assimilation effect by presenting a series of persuasive communications starting with an attitudinal position similar to one's own and moving gradually toward a highly discrepant position; and (2) increase the likelihood of assimilation of a moderately discrepant attitudinal position by presenting it in contrast to an even more discrepant position. The topic chosen for manipulation was a proposed salary increase for sales clerks. Selection of this topic provided an objective scale to be used. It was chosen primarily because Ss, students at a local high school, were relatively unfamiliar with salaries now paid clerks, and thus varying scales of present and top advocated salary could be established for Ss, allowing experimental manipulation of discrepancy.

Messages were prepared as news stories reporting meetings between representatives of sales clerks and management from department stores to establish salary guidelines to be used by those stores. Each message reported that a somewhat higher average salary had been discussed than at the previous meeting. In Study I, half the Ss read the four series messages, while the other half read only the final, most extreme, message to check on Ss' perception of the size of the salary increase. In Study II, two of the four messages were used, one arguing for a moderate position, the other for an extreme position.

A third study also was conducted. A partial replication of Study I, it was done with adult subjects, rather than high school students, to investigate questions raised by Study I.

Results. Strong support was found in Studies I and II for the hypothesis that changing the scale against which Ss judge an attitudinal position changes

Ss' own attitude as well. This finding could not be attributed to the procedures suggested by contrast and assimilation phenomena, however, because a necessary condition to test these procedures was not established -- i.e., Ss who read only the most extreme message did not contrast it more than did Ss who read a series (Study I) or two (Study II) messages. In Study III, in which adults participated, there was no indication that changing the scale against which Ss judged an attitudinal position changed their own attitudes as well. The findings were discussed in terms of the differential degree of knowlege of the attitudinal topic used, and the possible consequent use of internal rather than external reference scales against which to judge information presented to Ss.

Discussion. The implications of the findings were examined in reference to the perspective theory of Upshaw (1962, 1965), and further research areas were underlined. The significance of the findings for education then were discussed.

REFERENCES

Berkowitz, L. The judgmental process in personality functioning. Psychological Review, 1960, 67, 130-142.

Church, F. Extremist menace growing despite moderates' victory. Milwaukee Journal, January 17, 1965, Part 5, pp. 1 and 4.

Dillehay, R. C. Judgmental processes in response to a persuasive communication. Journal of Personality and Social Psychology, 1965, 1, 631-641.

Helson, H. Adaptation-Level Theory. New York: Harper & Row, 1964.

McDonald, F. J. Educational Psychology. San Francisco: Wadsworth Publishing Company, Inc., 1959.

Ostrom, T. M. Perspective as an intervening construct in the judgment of attitude statements. Journal of Personality and Social Psychology, 1966, 3, 135-144.

Sherif, M. & Hovland, C. I. Social Judgment: Assimilation and Contrast Effects in Communication and Attitude Change. New Haven: Yale University Press, 1961.

Thurstone, L. L., & Chave, E. J. The Measurement of Attitude. Chicago: University of Chicago Press, 1929.

Tukey, J. W. The future of data analysis. Annals of Mathematical Statistics, 1962, 33, 1-67 and 812.

Upshaw, H. S. Own attitude as an achor in equal-appearing intervals. Journal of Abnormal and Social Psychology, 1962, 64, 85-96.

Upshaw, H. S. The effect of variable perspectives on judgments of opinion statements for Thurstone scales: Equal-appearing intervals. Journal of Personality and Social Psychology, 1965, 2, 60-69.

Whittaker, J. O. Cognitive dissonance and the effectiveness of persuasive communications. Public Opinion Quarterly, 1965, 28, 547-555.

APPENDIX A

On the following pages are the instructions and the four basic messages which were used in Study I and III, and which include the messages used in Study II. The salary figures have been left blank in the messages presented here. The table below shows which figures appeared in the messages for each study.

Study I

	MESSAGE						
			1		2	3	4
CONDITION	Low	Av.	High	Proposed	Proposed	Proposed	Proposed
a	$2.25	2.50	3.00	3.75	4.95	6.15	7.35
b	1.75	2.50	3.50	"	"	"	"
c	3.00	3.25	3.75	"	"	"	"
d	2.50	3.25	4.25	"	"	"	"

Messages 2-4, when reinstating present average salary and range of course used the same figures as in Message 1.

Conditions 4a-4d read only Message 4, which gave the present average salary and range (corresponding to the series--i.e., a = 4a, b = 4b, etc.) and the proposed salary.

Study II

	MESSAGE				
			1		2
CONDITION	Low	Av.	High	Proposed	Proposed
A	2.25	2.50	3.00	7.35	6.15
B	"	"	"	6.15	7.35
C	-	-	-	6.15	6.15
D	-	-	-	7.35	7.35

Study III

The messages used were the same as those in Study I, but only conditions b, d, 4b, and 4d were run.

American Institutes for Research
Palo Alto

For several years we have been investigating whether messages which have appeared in newspapers and other publications are read and understood by readers, and what factors contribute to greater understanding of the news. The purpose of such research is to try to make news of important events more accessible to the public--to make it more interesting, easier to understand, and more likely to be remembered.

One of the things we're studying now is the public's judgment of news stories and the information in them. We want to know what readers think about how a story is written, the way the facts are presented, and so forth.

We have selected a number of newspaper articles which have appeared in papers across the United States in the past few months, and we are asking many different people to read these articles and answer some questions about them. Today, we would like you to read several news stories and give us your reactions to them.

Not all of you will be reading the exact same messages--we can get reactions to more stories in this way. Some of you will read from one to four related stories, others will read articles on another topic. Since we want your own personal reactions to the articles, please read them carefully. When you are answering the questions, please don't go back to reread information, and do not go on to the next page until you finish one page and are ready to go on to the next.

Your responses are anonymous, so please give these materials and your answers careful consideration. If you finish before others do in the class, just sit quietly until everyone has finished.

Chicago, Ill. (Nov. 3)--Representatives for retail sales clerks in major department stores in the metropolitan Chicago area met with management officials today to begin discussions designed to achieve wage scales to be used as guidelines in salary discussions with employees.

John C. Bates, spokesman for the committee and a retired personnel manager from one of the department stores, said discussions at this first meeting centered on a figure of as the average hourly wage. This would be a small increase from the present average of an hour. Bates said salaries in the Chicago area range from about an hour to about for clerks with much experience and responsible positions. These figures are not paid entirely in cash, but include the value of certain fringe benefits such as health insurance, paid vacations, discounts on merchandise, etc.

In the past, separate salary scales have been established by each retail store. Both employers and employees feel that the present discussions are a major step toward a more equitable method for dealing with wages, Bates said. Both management and employees are free to propose salary ranges they feel justified by the cost of living, the type of work involved, and the skills required of employees. The committee then will study the proposals and attempt to establish a consensus, which would serve as the salary guideline for all participating stores.

(Message 1, Study I, II, III)

Chicago, Ill. (Nov. 10)--Discussions between representatives of retail sales clerks in Chicago area department stores and management spokesmen to establish a basic wage scale for clerks continued today. The committee of employee-employer representatives hopes to come to an agreement on salaries which will serve as a guideline for all area retail stores.

John C. Bates, a retired personnel man who has been appointed spokesman for the committee, said a moderate raise to a average hourly wage was proposed by committee members today. The present salary averages about an hour, with a beginning rate of about and a top of about . Bates said no salary ranges were discussed in the committee meeting.

Bates said both employer and employee representatives were agreed on the need to recognize the contribution clerks make to the success of a retail business. "Courteous, efficient service from behind the counter or on the sales floor does much to satisfy customers and to build a store's good reputation," Bates said.

(Message 2, Study I and III)

Chicago, Ill. (Nov. 17)--John C. Bates, spokesman for a committee of retail sales clerks and of management in large Chicago area department stores, said today that the committee will not meet next week because of the Thanksgiving holiday. Employer-employee representatives have been meeting for the past two weeks to discuss a possible wage scale for retail sales clerks in the Chicago area.

Committee members today discussed a proposal for a salary increase to an average hourly wage of , an increase over the present average of an hour. Bates explained that these figures don't necessarily represent the actual salary paid, but also include the value of such fringe benefits as paid holidays and vacations, group health insurance, etc.

The committee of clerks and management representatives was established early this month after both employees and employers agreed that a salary guideline for all department stores in the area would benefit both the stores and the workers.

(Message 3, Study I and III)

Chicago, Ill. (Nov. 30)--A committee of retail sales clerks and management from Chicago area department stores concluded its discussions today, going back to the individual stores with a proposal that wages for sales clerks be raised to an average of an hour.

John C. Bates, spokesman for the committee, said the clerks and the management representatives will now discuss this proposal with employees and employers at their home stores. The committee will meet again in several weeks to hear the outcome of these talks.

The purpose of the committee's meetings has been to establish wage scales for retail clerks to be used as guidelines by retail stores in the area. At present, salaries are established by each individual store. Bates estimated that the present average hourly wage is about , with a range from about an hour to about an hour at the top of the pay scale. Representatives of both the clerks and of management met in a series of meetings to try to achieve agreement among the committee members on a salary guideline. The next step is to sound out the groups which the committee represented, before a final guideline scale to be used by participating stores is set up.

The wage figures don't necessarily represent the actual salary paid, Bates explained, but also include the value of such fringe benefits as paid holidays and vacations, group health insurance, discounts on merchandise, etc. Bates said both employer and employee representatives are aware of the importance of courteous and efficient service by sales people in satisfying customers and building a store's good reputation. Establishing a wage guideline for clerks would be a way of inviting qualified persons to apply for sales work.

The raise to an average of an hour was agreed upon after factors such as cost of living and wages paid workers in comparable lines of employment were considered, Bates said. He made no prediction about how individual store employees or managers would react.

(Message 4, Study I and III)

(Message 2, Study II)

APPENDIX B

Subjects in all conditions in all studies responded to the same questionnaire after reading all messages. The salary figures included in questions 1, 3, and 4 are left blank here, but of course figures appropriate to each condition were presented in the actual test situation.

INSTRUCTIONS

Some questions about the story or stories which you have read follow. Notice that some of the "questions" are in the form of a statement. Underneath each statement is a line with 15 spaces in it. You are to read the statement, and then place a check mark on the line in the space which indicates how you feel about that statement. For example:

At the present time in the U. S., life expectancy is greater for people living in rural areas than for those in urban areas.

definitely disagree	mildly disagree	neutral or don't know	mildly agree	definitely agree

Notice that the scale has five main categories (definitely disagree, mildly disagree, etc.) and that each of these categories has three divisions--that is, there are 15 rating positions in all. You indicate how much you agree or disagree with the statement by marking an "X" in whichever of these 15 divisions best shows your opinion about the statement.

Please read the statements carefully, so you are sure you are indicating how you feel about the statements below at this time.

1. The suggested raise from the present average hourly wage of to seems to me to be:

___:___:___ /___:___:___ /___:___:___ /___:___:___ /___:___:___

no increase at all	a very small increase	a moderate increase	a rather large increase	a very large increase

2. What average hourly wage do you feel should be used by employers as a basic salary guideline?

$.___

3. As a reader, I feel that the proposed average hourly salary increase to is:

___:___:___ /___:___:___ /___:___:___ /___:___:___ /___:___:___

definitely not enough	not quite enough	about right	a little too much	definitely too much

4. As a reader, I feel that the present average hourly salary of is:

___:___:___ /___:___:___ /___:___:___ /___:___:___ /___:___:___

definitely not enough	not quite enough	about right	a little too much	definitely too much

Below are a list of adjectives and a line with 7 spaces for you to check to indicate how you feel about the stories or subjects you've read about. Place your "X" in the <u>one</u> space which best describes how you feel about the stories or subjects. For example:

	Very	Somewhat	Slightly	Neither or Don't know	Slightly	Somewhat	Very	
good	X							bad

If you feel the stories were "good", you would place an "X" in the space next to the word good, as shown above. If you felt the stories were "somewhat good" you would Place an "X" in the next space--the second space from the word "good"--and so on. Use the middle space to indicate neutral or don't know.

The news stories (or story, if you just read one) that I have read are:

well written								badly written
interesting								uninteresting
unbelievable								believable
factual								not factual
poorly organized								well organized

Sales clerks are:

valuable								worthless
bad								good
interesting								uninteresting

The kind of meetings reported are:

worthless								valuable
necessary								unnecessary

Have you ever worked as a sales clerk? _____ No

_____ Yes

Do you think you might work as a sales clerk in the future?

_____ No

_____ Yes → _____ Full-time?

_____ Part-time?